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What type of support is required for particular media literacy skills? From innovative teaching methods to daily practices.

Since the turn of the millennium, there has been a strong focus by researchers, pollsters and practitioners on the digital literacy skills of children, adolescents and young adults. The reasoning shared by all of these investigations is the widespread dissemination of connected uses in societies and the required appropriation - often deemed to be specific - of information and communication technologies (ICTs) by the youngest people. Within academic institutions, the updating of guidelines and more generally of learning requirements, relate to the same concern - that of adhering to social practices. This involves the strategic practice of "Bringing schools into the digital Age" ("Faire entrer l'école dans l'ère numérique" [MEN - French Ministry of State Education] 2013) and not the opposite, which implies that until this point, schools may have been left out of the process. However, one question remains unclear which concerns the media-related and digital practices of teachers and especially the possible transfer of the teacher's personal practices to his or her classroom practices, mostly self-taught in the digital sphere. Teachers correspond to population categories whose uses are quantitatively significant and qualitatively diversified (CREDOC 2013, Donnat 2009). However, this practice is difficult to detect in the field of professional uses. Indeed, surveys point to classroom uses being somewhat limited and occasional (Alluin et al 2010). The PROFETIC survey (MEN 2011, 2012) describes teachers as properly equipped practitioners, convinced of the benefits of ICTs for education but who use the technologies for professional purposes prior to the classroom stage (preparation of lessons rather than integration into the processes of sharing with colleagues, involvement of pupils, communication with families and assessments). This situation at least partly justifies the Ministry of Education's instruction to bring about a convergence between schools and digital technologies. This institutional desire should also be put into context alongside wider ranging requirements, broken down into a series of "key skills" identified as being crucial for the "lifelong education and training" of 21st century citizens (Unesco 2001, CERI 2013). Amongst these key skills, which are not restricted to the time or place of schooling, digital literacy occupies an overarching position and can be defined as a mastery of the technical means required to "*obtain, assess, store,*

produce, present and exchange information, and to communicate and participate in collaboration networks via the Internet" (EU 2006). This digital literacy may include skills of an information, media and transliteracy-related nature (Sue et al 2007, Delamotte et al 2014), which interest us. These skills in pupils have thus been the subject of a number of well-known international experiments that have been validated by ministries but implemented outside of the institutional frameworks established for pedagogical experimentation and appropriated by teachers on a voluntary basis. These experiments have been sponsored by academic and/or industrial partners. Here are several examples which are not entirely comparable with each other: *Partners in learning, Assessment and Teaching of 21st-Century Skills*, "*We learn it!*" types of European projects and *European schoolnet* projects. This paper is in itself an integral part of the European iTEC (*innovative Technologies for an Engaging Classroom*) project, which will be presented later. iTEC is based on the implementation of pupils' media literacy skills and creativity. It is thus a question of taking account of the possible implementation of specific media literacy skills in the framework of a contextual "no man's land", i.e. an experiment that is declared as such, that is presented as not being directly derived from formal national academic requirements and not totally comparable to ordinary teaching practices and which, at the same time, takes place in the context of a class and of a traditional professional practice, and that is dedicated to the learning requirements of official curricula. This is an important point which will allow us to reflect on the approach of the teacher in question and the field of media and information literacy skills that he or she must develop with the pupils. What type of "support" is likely to be implemented in this experimental framework, which can apparently be described as "innovative"? Does this support modify the teacher's usual practices?

The final point, in the form of a conclusion and still from the teacher's standpoint, will concern any areas of conflict or compatibility between the scope of these 21st century skills and the formal framework of school curricula.

1. Definitions

- Innovation and support

The notion of pedagogical innovation is at the heart of the iTEC project's intentions. It mainly relates to the technological aspects of the project. Furthermore, recurrent parallels between "ICTE" and "innovation" can be observed in the literature - including the institutional literature - with the integration of digital solutions being seen as catalysts for change within the teaching and learning experience and promising a reconciliation between academic

requirements and the pleasure of learning. In addition to the use of the tools, research on this subject has placed the emphasis on designs, practices and any transformations that might be made. Innovation - a complex notion that has spawned an abundance of research that is difficult to generalise - is above all a process and as a consequence, it is difficult to evaluate. West and Altink (1996, cited by Cros 2009) propose three points of convergence between the variety of existing definitions: "a novelty (absolute or simply with regard to where it is adopted); an application component (i.e. not just ideas but their application); an intention to improve (which distinguishes between innovations and serendipitous changes or deliberate sabotage) and a reference to the innovation process". Moreover, it cannot be considered separately from the meaning assigned to these processes by the stakeholders themselves (Postic 1986).

"Innovation" and "support" are two key notions in our work, which are also jointly employed in the education field (Cros 2009). The meaning of the word "support" firstly referred to a certain type of supervision by academic institutions, wishing to recast their relationship with teachers as a form of "friendly mediation". Here, support relates to a form of control of a contradictory nature, seeking to implement a trainer/trainee or teacher/pupil relationship that focuses on the learner's capacities for autonomy and self-realisation. In this respect, the choice of the term "support" in the call for papers for this publication is a partial response to the question posed, as it refers to a certain type of mediation that seeks to facilitate the emergence of learning without imposing it, requiring the "supporter" to constantly and instinctively adjust his or her approach.

- "Pupils" practices and "teachers" practices

Little is still known about the digital practices of secondary school teachers. The digital practices - relating to information and documentation in particular - of teachers and lecturers in higher education have been more widely studied. The PROFETIC survey, carried out by the French Ministry of State Education in the secondary sector over a two-year period (2011-2012) revealed great disparities in practices and representations, which were summarised in five profiles. Apart from easily identifiable administrative tasks ("entering grades and absences", "filling in the homework diary"), PROFETIC does not specify the practices, which are simply mentioned in the form of items such as "setting up activity sequences with [or without] the use of ICT by pupils", "carrying out a sequence", "making lessons more interesting", etc. The logistical focus of teachers' uses are included in the IPSOS survey of the subject (IPOS 2011). Considering the acceptability of the technologies and the teachers' initial

perceptions, the scientific literature focuses on the modelling of processes for the integration and dissemination of ICTs in school (e.g. Mishra Koehler 2006, Puentedura 2006). Although little is known about teachers' digital practices, we do have a large body of material that allows us to define the practices of young people - and therefore of their pupils. These data allow us schematically formulate three findings: the time has come for precise approaches as distinct from a global approach in order to understand the specificities of the uses and their interrelationships (communication-based uses, information-based uses, entertainment uses, gender-specific practices, etc.); in terms of digital literacy skills, these results prompt us to deconstruct clear-cut approaches ("digital natives" vs. "digital naives"). The reality is indeed much more varied and complex and must be added to a precise knowledge of the uses as mentioned above. Finally, in terms of practices, these surveys emphasise the extreme variety of profiles and indeed of the inequalities from one young person to another (Merklé Octobre 2012). From a theoretical and methodological standpoint, we seem to be confronted with a research challenge, concerning the renewal of the concept of "practice" (Chaudiron Ihadjadene 2010) and the difficulty of identifying the individual reality of uses. This has led to the proposal of new categories that update significant elements (detours, dead ends, hints, hazards, creations, short cuts, collective strategies, etc.), which are impossible to identify as such when applied to the pre-existing frameworks of thought. This is what the concept of transliteracy offers by aiming to renew the concept of information literacy and by facilitating the understanding of a novel form of information-related and behavioural "flexibility" and agility at the convergence of the three fields of competence, information-related, information technology and media-related: "The "trans" prefix suggests both a quest for transversality in research, appropriation and information rewriting approaches, in addition to the each person's capacity to transfer prior acquisitions into a variety of information-related and technical environments and contexts. Finally, this same prefix also concerns going beyond teaching approaches and attitudes which, until now, have been tested in the scholastic and educational sector; this applies to the domestic field as much as to the scholastic field" (Delamotte et al 2014). It can be observed here that most of the challenge is due to the permeability of the contexts (private/public, domestic/professional, school/home, etc.), which transforms the association between use and the framework of use. This permeability is increased by the massive use of mobile and customised connected devices. In this respect, it can be noted that the large majority of studies of the digital literacy skills and practices of young people are focused on their "ordinary" uses which are necessarily situated of outside the formal scope of the academic institution or class. The "academic culture" and "digital culture" of young

people are thus placed back-to-back. The academic practices are defined with respect to this difference. While a certain barrier exists between these two worlds, it should also be put into perspective from the standpoint of the reality of the pupils' and their teachers' practices. Moreover, it may constitute a theoretical filter that interferes with the consideration of the transversality and the symbolic and actual interactions between both formal and informal spheres, interfering with the richness of this "intermediate" and "composite" area which "does not exclusively relate to academic practices or to individual practices and is not limited to the school space or personal space" (Cottier 2013).

2. Contextual elements: the iTEC project

The iTEC research-action project is coordinated by the European Schoolnet organisation and funded in the framework of the 7th European Commission Framework Programme for Research and Technological Development. It involves 18 countries and, over a four-year period (2010-2014), seeks to test pedagogical scenarios in classrooms, involving the use of digital technologies and the implementation of complex media literacy skills (collaboration, learning through inquiry and research, communication, seeking of information, etc.). The iTEC scenarios (learning stories) are open and can be adapted to each context or educational level. They are implemented *via* a set number of activities (learning activities), presented in the form of "modules" and using a certain number of tools, developed specifically in the framework of the project (TeamUp, Reflex) or for the general use (Padlet, Bubl.us, Diigo, etc.). Each of these scenarios involves pupils creating a project collaboratively and developing resources which are then made available to other people - primarily other pupils (e.g. on the school's website). Discovered and formalised in the business sector in the 1950s, "design thinking" is the principle behind these scenarios and activities proposed for experimentation. It entails applying the processes involved in designing a project, resource or item, to the education, teaching and learning sector: identifying a problem according to an environment or context; determining one or more ideas capable of addressing the problem; designing the form that will embody this concept; transmitting its "prototype" to users, peers or experts for comments; taking account of a certain number of external data that will guide this design (search for information, gathering of opinions, observation, benchmark, state of the art or observation, etc.), and documenting the progress. Design thinking puts the emphasis on using a collaborative approach, and on accelerating the cycle of testing and errors. It is based on a systematic and systemic understanding of an environment. Examples of such activities include a project carried out by a Life and Earth Sciences teacher in a secondary school whose

pupils looked into the possibility of "making soil" and successfully completed the different stages for designing a composter-type of "machine". This aim required them to understand the components of soil by making observations in the field and carrying out documentary research, drafting operating instructions and the conditions of use for their machine, seeking information online and comparing existing instructions. To this can be added the creation of a collaborative online map of local heritage resources documented by Year 4 pupils. Another example is the production of online video tutorials (*via* smartphones) for chemistry lessons carried out by Year 12 pupils. In these examples, we find a certain number of critically important transliteracy-type procedures and skills, e.g. the importance of creation by pupils, their collaboration in data collection and in comparative analysis or documentary research tasks and in the presentation of results. The pupils are responsible for their project as well as for the choice of the resources and tools required to carry it out. For the teacher, uses in class and also outside of the classroom must be taken into consideration, as the project could take place out of school time (e.g. collection of data in the field during a family outing at the weekend).

Our context is thus very specific, and allows us to see the interactions between traditional targets for progress in academic disciplines and the media-related requirements associated with experimentation. In practice, there have been five series of experiments in the iTEC project, each involving the testing of pedagogical scenarios over periods of 3 to 4 months. In France, this project has seen the involvement of 85 teachers at different stages of schooling from Year 1 upwards and in different disciplines (29 primary teachers and 56 teachers in different types of French general and vocational secondary schools and colleges, throughout 13 regional education authorities). They include teachers of all ages, averaging around fifteen years of seniority in the profession. Some of them are already involved in other experimental projects or training assignments, but this is by no means the majority. We are dealing with a relatively heterogeneous population of teachers, including those who are not very familiar with digital technologies.

3. Methodology

The iTEC research-action project proposes a very precise material collection methodology:

- Individual questionnaires sent to all European teachers
- From one to three case studies per country for each experimentation cycle (11 case studies in France): case studies in classroom situations, involving an observation using a criteria-based scale and four semi-structured interviews (with the teacher, a group of

pupils, an ICTE manager and the Head Teacher). The aim of the case studies is to identify the relevance of the pedagogical scenario tested, in relation to the teacher's aims and the actual learning situation and also with regard to its possible level of innovation (changes in the teacher's pedagogical thinking and practices).

- A focus group of teachers per country for each experimental phase

4. Results¹

At the European level and after analysing the material collected, the teachers interviewed consider that the pupil's role seems to be modified by the pedagogical activities proposed in the test, with the requirements in terms of autonomy and collaboration being critical factors. It is this modification of the pupil's role that requires the teacher to change his or her own approach. In this case, the use of technologies in the classroom is not new to the teacher; the novelty resides in the use of these tools for analytical, design and creative purposes by the pupils. This objective does indeed go beyond the habitual uses of searching for information and presenting assignments, for example. In this regard, the iTEC activities have obliged the teachers to reconsider how and for what purposes they use certain tools or "resources" (McNicol Lewin 2013). These European results need to be put into perspective alongside the results of the analysis of data collected from French teachers. This allows us to look at several points in greater detail, mentioned by the teachers in their interviews as factors - some of them radical - that caused them to modify their usual classroom practices and teaching approaches.

- The need for stringent planning

One of these points relates to the importance that the teachers attach to the need to plan the learning sessions in advance more systematically than usual. In practice, this means "scripting" the sessions and learning tasks- in the narrative sense of the term - and creating, with the pupils, a framework that is both constrained and inspiring: "To start with, we established an action plan based on the number of allocated sessions. I presented it to them a bit like that, in order to see where we were heading and what stages would be involved ... (...) It's really interesting. Because, well, it doesn't give you any content but it does give you an idea of how to set out what you need to transmit" (lower secondary school). This seems to apply equally to the teacher, his or her pupils and the structuring of their group work: "(...) they know where they're going - that's important - but at the same time, they have the freedom

¹ Verbatim reports are based on the declarations of the teachers interviewed, whose level of teaching is stated in brackets.

to create, so suddenly, they start producing remarkable designs and we bring out other skills" (high school).

"These are documents that could... actually, that should develop outside the classroom" (high school). We insist on the fact that the planning required for the project and the management of the pupils' work oblige the teacher to include extra-curricular and private time as an integral part of the pedagogical project, which Jean-Luc Rinaudo refers to as an "extension of the field of pedagogical action" (Rinaudo 2013). For example, the collection of data thus needs to be organised with families, access to equipment (video and still cameras, etc.) must be provided and the approach used by the pupil and his or her group must be monitored and documented.

- Creating the collaboration

The highly collaborative dimension of iTEC activities is the other key factor that emerges from the testimonies collected from French teachers: "It speeded up the dynamics of the class. (...) It's really the key to the project. That's really what transformed my approach to teaching" (primary). As such, there are recurrent concerns about the organisation - practical and otherwise - of this collaborative work. The creation of teams, initiation of work, attribution of tasks and pooling are all highly complex and decisive pedagogical acts (Depover et al 2004) which teachers adjust through trial and error: "(...) it's more comfortable to line them up. At the start, the first sessions were noisy. We were wondering whether or not they were really going to work for three quarters of an hour. And now it works. You need to get through it - you've got to accept that you'll lose a bit of this time" (primary); "They immediately realised that they needed to split up, they couldn't all work on the same thing at the same time - it wasn't possible - so that forced them to work on different things and really operate as a team" (high school). This collaborative situation is described by the teachers in their interviews as being familiar and yet new - both for them and their pupils - as it is rarely implemented in such a form. Furthermore, there are numerous questions concerning the technical tools that can be used to implement an effective collaboration, for the purpose of communication and in compliance with the rights of contents and people.

- Managing the resource

In all disciplines and levels at which these activities have been tested, we observe the importance of information and data collection and of their management during the course of the work: prompting questions and knowing how to "provide resources when we have created the need" (lower secondary school). "An unforeseen aspect that was nevertheless somewhat

predictable was all of the work involved in collecting information and putting it online. Having done it previously, I knew it would take a long time but it took even longer (...) it's just one of those things you have to do" (primary). There's a broad range of information sources. Here, the questioning of people identified as being experts in a field, the immediate or distant environment and its observation are considered to be sources that must be questioned, exploited validated and analysed. This aspect leads to uncertainties that often leave the teacher bewildered: the management of records of pupils' activities (documentation of collection, rough work or drafts, references, etc.) and intellectual property in particular (both as a consumer and producer of information when it comes to publishing work online, for example).

- Rethinking learning environments

In an aspect that is closely related to the last two points, teachers are frequently required to reconsider the spatial organisation of their classrooms. As the sessions incorporate lots of group work, alternating with plenary periods, teachers state a desire to make a break from the traditional layout of tables and chairs and to provide tools and resources. Many of them wish to be able to make greater use of mobile devices (e.g. smartphones) for activities involving information-seeking and data collection, and place the emphasis on tools and resources dedicated to the creation and dissemination of contents (e.g. editing software, blog platforms and audio recordings). The spatial organisation of the learning environment does not solely concern the classroom; thought must also be given to learning that takes place outside. This type of project thus requires pupils to be given the opportunity to take on and carry out tasks that are traditionally the teacher's responsibility. Here, the pupil acts as a designer within a team. This is not necessarily a totally new approach as it corresponds to the principles of active pedagogy (Freinet, Montessori) but it requires the teacher to reconsider his or her practices or even envisage a change of approach. So when examining whether the work areas are appropriate for the pedagogical project, the teacher firstly takes stock of his or her teaching practices and the changes that must be made in order to support the pupils in their design project.

- Co building practices

In line with the different aspects stated previously, teachers mention the challenge of jointly devising the practices, involving the pupils in a creative process and embarking on it with them: "You need to have ideas and respond to pupils' ideas (...) You need to trust the pupils

and then its not the end of the world if you don't succeed ... (...) but it's quite a process nevertheless (...) It's not an easy position to be in" (lower secondary school); "There are always experts in a class. (...) Especially when the teacher is out of his depth" (lower secondary school); "When the video is moving all over the place it doesn't look as good, but it's a child's own work" (primary). As such - and its always a challenge because it's never easy to share out the responsibilities - the teachers pay great attention to the assignment of different skills. As they often consider that the pupils are very comfortable in using the tools, the teachers will act as experts, not particularly with regard to the subject content but more in terms of how to approach it and help their pupils to devise it: "(...) that's where they get really involved because everyone has their own expertise" (secondary school, second cycle).

- Primacy of the approach

All of these factors together have major consequences for the assessment processes. The approach used by both the pupil and the group is prioritised *via* audio reports recorded on mobile devices, for example: "They were obliged to think ahead, carefully construct and make a plan - most of the pupils produced a written plan (...) and personally, in my everyday work, I just don't see this quality of reporting with traditional scenarios" (high school).

Research, processing and information transmission activities predominate in the activities proposed by iTEC. Here, the pupil's individual commitment is inseparable from the collective dimension because the activities are always carried out in groups and in a collaborative and/or cooperative manner. Researchers at the University of Manchester (Education and Social Research Institute) have thus examined the existing models for information literacy education. On the basis of the definition of Information Literacy put forward by the Alexandria Proclamation, they propose the InFlow (Information Flow) model in order to include strategies that have been largely excluded from the guidelines, i.e. seeking information in collective/collaborative situations and activities involving the creation/production of information by pupils. The InFlow model is greatly inspired by design thinking in the iTEC scenarios and proposes a series of modular, non-linear and repeatable activities: "ask", "show", "make", "reflect", "map", "imagine", "explore" and "collaborate" (McNicol 2014). This involves proposing tools and resources which are useful for teachers and material for supporting and assessing pupils' approaches.

5. Discussion

As regards the compatibility of the experimentation with the formal scholastic requirements, the teachers concerned always start by finding points of reference in the iTEC scenario that relate to their normal practices and are compatible with the resources at their disposal. They ensure that they remain within a certain "comfort zone". However, at a given moment, they all observe a certain conflict with the curriculum to be delivered. This conflict relates more to the organisation of time than the teaching contents. In the end, the teachers express the need to rethink the academic requirements from a multi and/or cross-disciplinary point of view. This is the difficulty - relating to work with colleagues - that is the most commonly mentioned.

The French and European results of this experimentation coincide with regard to the modification of the teacher's role through the implementation of information-seeking activities and above all, the production of content by the pupils - activities that require efficient collaboration and cooperation and the consideration of pupils' initiatives. The aim here was not to discuss whether or not the iTEC project was truly "innovative" but to describe what, from the teachers' standpoint, obliged them to rethink, or indeed modify, their professional practices. The elements described may even appear quite mundane from the perspective of information-related pedagogy. However, it should be remembered that they are discussed by a group of teachers that have to implement them under real conditions. As such, we observe that in the end, the teachers apply the pedagogical methods of the experimentation to themselves (metacognitive activities, communication of ideas or results, experimental approach and collective work). This interaction between the media-literacy skills established for pupils and these same skills developed by the teachers themselves is strengthened by the distortion of learning times and environments. The creative dimension - with the pupils and teachers themselves acting as designers - seems to pose the greatest problems for these teachers. It has a major impact on the teacher's relationships with the environments, times and resources for teaching and learning. The shift in focus that is required is sometimes difficult for teachers to make but eventually leads to the reaffirmation of a specific pedagogical expertise.

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